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ince the 1950s the influence of a full-time, certified school librarian in a school library has been positively correlated to student achievement. Mary Virginia Gaver's 1963 study report Effectiveness of Centralized Libraries in Elementary Schools is the publication that set school library research in motion. This pioneer research investigating the effect of school libraries on elementary reading scores was one of the first to relate achievement tests to the presence of a school library and certified school librarian (Dickinson 2005). Since then, a foundation of twenty-five correlational studies have clearly established this connection between school libraries, certified school librarians, quality school library programs, and student academic achievement (Scholastic 2016).

By defining the emerging roles of the school librarian in the digital age, we can implement professional practice that drives educational achievement.

However, more than fifty years later we still understand little about how the practices of school librarians cause student success. Efforts are under way to generate causal research on the influence of school libraries and school librarians on student achievement. By defining the emerging roles of the school librarian in the digital age, we can implement professional practice that drives educational achievement.

Mary Virginia Gaver (1906–1991) was born into the analog world of linear physical data. Early in the twentieth century Gaver advocated for school libraries and sought to discover how school librarians and school library programs impact student achievement. Before Gaver entered the field of research, school librarians counted books, staffing levels, and hours open. But Gaver asked the difficult question: What do we do in the school library that makes a difference to the intellectual development of our students? To put a finer point on it, "Gaver turned the attention of the field from counting the resources as proof of effectiveness to looking at the student learning that was the result of the use of those resources under the direction of a skilled school librarian" (Dickinson 2015). Mary Virginia Gaver understood that access to a real school library was vital to the education of young students.

Biography

Mary Virginia Gaver understood that access to a real school library was vital to the education of young students. As a child she canvased door-to-door with her mother and brother to raise funds to buy books for the elementary school in their small mill village of Danville, Virginia. Gaver later served as an English teacher and in 1928 became the librarian at the local high school. She trained as a librarian through the District of Columbia Public Library, eventually earning a bachelor's degree in library science in 1932 and a Master's degree in library science in 1938, both from Columbia University. Gaver brought direct experience to the education of school librarians, teaching at the University of Virginia, Emory University, and Trenton State Teacher's College. She opened the

Figure 1. Library categories in Gaver's landmark study. (Gaver 1963)

Six Selected Schools		
Schools A & B*	Schools C & D	Schools E & F
Category III	Category II	Category I
School Library Directed by Certified Librarian	Centralized Collection Staffed by Non-Librarian	Classroom Collection
An organized central collection of books and other materials, broad in variety and content, housed in a room in a school for the use of students and teachers and under the direction of a librarian.	A "transitional model" such as a central collection administered by a teacher in addition to teaching duties or by a PTA member.	A semi-permanent or temporary collection of books deposited in a classroom by a public or school library or by the bookmobile, and/or a teacher-built collection kept permanently in the classroom.

^{*} Educational gain between fourth and sixth grades and the test of library skills differentiated in favor of the school library category.

graduate library school at Rutgers University in 1954 (Gaver 1988). She further influenced the field of school librarianship by serving as president of the American Association of School Librarians (1959–1960) and the American Library Association (1966–1967).

The Study

At the close of the 1950s, the need became apparent "to convince school administrators that a real school library was an essential for a good elementary program" (Gaver 1963, 129). To find evidence, Gaver launched her landmark study, the results of which were published in book form in 1963 as Effectiveness of Centralized Libraries in Elementary Schools. The initial study, intended as a preliminary to a larger study, set out to develop measures of the relationship between library service and educational achievement. To do this Gaver carefully chose six schools that represented three library categories (see figure I). She selected (I) two schools with only collections of books deposited in a classroom, (II) two schools with a centralized collection monitored by a non-librarian, and (III) two schools with school libraries, which

she defined as "An organized central collection of books and other materials, broad in variety and content, housed in a room in a school for the use of students and teachers and under the direction of a librarian" (Gaver 1963, 1).

Gaver's ground-breaking study found that schools with school libraries and school librarians (schools A and B) showed higher educational gains, defined as improved scores on the Iowa Test of Basic Skills (ITBS) from fourth through sixth grades. Findings also differentiated in favor of the school library category based on the test of library skills that she developed for this study (Gaver 1963). Gaver's evidence also showed that the library provision of the school (classroom library, central collection, or school library) is related to the amount

that children read. Children in schools with school libraries read twice as much as those in schools with centralized collections (but no librarian) and three times as much as those in schools with only classroom collections (Gaver 1963).

But Effectiveness of Centralized Library Service in Elementary Schools was more than an examination of achievement scores. Gaver developed several instruments and looked at a variety of dimensions of library service. Her findings showed a clear differentiation in favor of the school library category for collection of materials, accessibility, and the volume of library-related activities. Her findings also showed in favor of the school library category for mastery of library skills, in addition to the amount of reading and gains in ITBS scores (Gaver

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1963). This initial study, which she labeled "Phase I," was intended as a "fishing expedition." The findings that school libraries and school librarians influence student achievement were so conclusive that Gaver did not extend the study. Without the need for further study Phase II never came to fruition (Gaver 1988).

Impact on Our Field

Mary Virginia Gaver conducted the first correlational research in the field of school libraries. Many in our field trace the beginning of the search for proof that effective school libraries impact student learning to her study published just over fifty years ago. While conducting her study she developed measures of the effectiveness of school library programming and the positive influence of a certified school librarian. Although her study addressed a small sample size, she demonstrated that improved student achievement correlated with the presence of a school library staffed by a certified school librarian. Gaver was the first to research the activities in libraries that contribute to student success.

The work of Mary Virginia Gaver is important to us in today's digital environment in school libraries. In many ways the state studies evidencing the positive effect of school libraries on student achievement are descended from Gaver's work and provide a strong exploratory research base (AASL 2014). Beginning with the first Colorado Study (Lance, Welborn, and Hamilton-Pennell 1993),

the Library Research Service's School Library Impact Studies have shown that school libraries have a profound positive impact on student achievement (Library Research Service 2016). More than twenty-five of these studies have clearly established a correlational link between school librarians and school library programs, and student success (AASL 2014).

Today's digital environment allows us to display effects that were never possible in Gaver's analog world. Recent efforts to establish causality have been mounting. In April 2014 the American Association of School Librarians held a national forum funded, in part, by a grant from the Institute of Museum and Library Services. The purpose of this summit was "to articulate a research agenda and investigate causal phenomena in school library instruction, resources and services" (Habley 2014). The resulting white paper, Causality: School Libraries and Student Success (CLASS), proposed "a progression of research methods and projects that will support efforts toward theory building, exploratory research, and demonstration research" and "outline mechanisms by which a community of scholars can be cultivated and nurtured toward furthering the research agenda and its activities" (AASL 2014).

A second research summit was held in Washington, DC, in April 2016. The CLASS Summit II sought to deepen the research by bringing "a national focus and agenda to research surrounding causal evidence that school libraries make positive contributions to student achievement." Fifty participants, including thirty professors and twenty doctoral students, worked to establish "an ongoing national research summit to ensure continuous [strides] in school library causal research" (Habley 2016).

The AASL CLASS Summit II had an innovative format. Participants prepared papers describing their research vexations and ventures. Each came to the table with a sketch of the research problems currently occupying their minds and the ways they planned to investigate these problems. Colleagues with similar research interests grouped together to discuss ways to introduce causal research into the process. As a NxtWave scholar and doctoral student, I had the privilege of participating in this trail-blazing event hosted at the American Library Association offices in northwest Washington, DC. A day-long discussion led by Dr. Shana Pribesh of Old Dominion University centered on causal research design using the PICO (Participants Intervention Control Outcome) model. Like Gaver, Pribesh asked the hard question: "How do you isolate the effect of the school librarian when the influence of the school library is diffuse?" To show causal relativity, she recommended using a control group, either artificial or naturally occurring, and careful temporal order of treatment before outcome to be sure that the cause precedes the effect. Dr. Pribesh discussed different research models that could be used, including the use of a control group, or, when that is not possible, using matched samples.



Ideally, future research related to school libraries will incorporate strong causal research designs while integrating best practice with theory and policy.

Future of School Library Research

Mary Virginia Gaver would be proud to know that so many have followed in her footsteps. Her ground-breaking correlational research has led, by way of the state studies, to establishing the positive impact of school libraries and school librarians on student achievement. Researchers now turn to establishing "a causal relationship between the work of effective state-certified school librarians and the creation of motivated, engaged, and agile learners" (AASL 2014, 5). This goal can be accomplished by using certain experimental and quasiexperimental methods. Quantitative methods such as randomized control trials, time-series designs, and matching studies will isolate the effects of school librarians and strong school library programs, and allow for causal description. Addi-

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tional qualitative methods will allow for a causal explanation. By developing an action-research agenda, researchers intend to codify theory about school libraries and school librarians, identify and test best practices, and measure large-scale impact (AASL 2014).

From the linear analog world of Mary Virginia Gaver to today's hyperlinked digital environment, school library research has evolved from finding correlational relationships to uncovering the causes of student success. Future research will allow for highdefinition characterization of the emerging roles of school librarians and their professional actions that drive student achievement. This integration of theory and practice will launch us into new worlds of research-driven practice.



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<www.ala.org/aasl/sites/ala.org.aasl/
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CLASSWhitePaperFINAL.pdf>
(accessed August 13, 2016).

This white paper reports on the 2014 CLASS Summit and proposes a progression of research that supports theory building, exploratory research, and demonstration research, and outlines mechanisms to cultivate a community of scholars to further the research agenda.

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> By focusing on one child, evidence-based practice can be used to systematically improve results and provide a strong foundation for the school librarian's role in student achievement.

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in Elementary Schools, 2nd ed. New
Brunswick, NJ: Rutgers University
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Author Mary Virginia
Gaver, professor at Rutgers
University, described her
1960 study of six schools
in two states. This edition,
published in book format,
differs from the original
mimeographed version by
inclusion of a Foreword
and Acknowledgements
and a new chapter, "Afterthoughts and Next Steps."

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> Mary Virginia Gaver described her early years, her work to establish a school library system, her time at Columbia University, her work for the Federal Works Project Administration library program for Virginia, her professorships at Trenton State College and Rutgers University, and her international activities. Later chapters describe her time as president of the American Library Association and the Women's National Book Association.

Habley, Jennifer. 2014. "National IMLS Research Summit Focuses on School Librarians and Student Achievement." www.ala.org/news/press-releases/2014/04/national-imls-research-summit-focuses-school-librarians-and-student (accessed March 5, 2016).

AASL announced a research summit focused on setting an agenda for school library research. The summit took place in Chicago, April II–I2, 20I4. The keynote speaker was Thomas Cook of Northwestern University. The purpose of the summit was to articulate a research agenda and investigate causal phenomena in school library instruction, resources, and services.

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> This call for participants for the 2016 CLASS Summit II invited doctoral students and professors to communicate their interest in participation.

The summit was intended to bring a national focus and agenda to research surrounding causal evidence that school libraries make positive contributions to student achievement. The event will become an ongoing national research summit.

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Use this guide to explore studies about the impact of school libraries on student achievement. Part of the Colorado State Library, the LRS designs and conducts library research to inform practices and assess needs.

Scholastic. 2016. School Libraries Work!
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The 2016 compendium School Libraries Work! amasses data to empower librarians and other stakeholders. School librarians equipped with research-based frameworks, recommendations, and support for school library programs become a powerful force for educating America's students.